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State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Solid Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director

DEHNR

April 3, 1995

Ms. Renee Henderson
Environmental Affairs Department
Marine Corps Air Station
PSC-Code 8006
Cherry Point, NC 28533-0006

Subject: Comments on **Draft Final Remedial Investigation Report - Phase II**
Site 29 - Crash Crew Burn Pit
MCAS - Bogue Field, NC

Dear Ms. Henderson:

The North Carolina Superfund Section has reviewed the subject document. Enclosed are our comments. Also enclosed are comments from the Division of Environmental Management, Wilmington Regional Office's Groundwater Section.

If you have any questions, I can be reached at (919) 733-2801, extension 244.

Sincerely,

Linda F. Raynor

Linda F. Raynor
Environmental Engineer
NC Superfund Section

cc: Jack Butler
Charles Stehman, WilRO
Diane Rossi, WilRO
Gena Townsend
Gary McSmith
Matt Cochran

DRAFT FINAL REMEDIAL INVESTIGATION REPORT - PHASE II
SITE 29 - CRASH CREW BURN PIT - BOGUE FIELD
(Report Dated January 1995)
(Comments from NC Superfund Section)

General Questions/Comments:

1. The figures (plume drawings and cross-sections) and tables presented in Section 5.0 (The Nature and Extent of Contamination) for this Phase II report are well done, however, additional information from previous investigations needs to be incorporated into this report.

The assessment activities for this site have been performed in several stages, over a period of 10 years, and the sampling and laboratory analyses of site media varied with each investigation. Although the text of section 2.1 of this report summarizes the previous activities performed, it is very difficult to evaluate the nature and extent of contamination for this site based on all the work performed because the technical documentation needed to evaluate these factors is disbursed throughout numerous reports (some of which do not include laboratory analyses results) and workplans. The previous investigative sampling results need to be summarized and incorporated into the discussions, plume drawings, cross-sections and tables of this report to more fully evaluate site conditions.

NOTE: When investigations are performed in stages, the most current report should include summary tables and figures presenting results of the previous investigations, along with the most recent investigative results.

This report should include summary tables and figures of the following, for all work performed:

a) Summary Table of Analytical Parameters - Table presenting the sampling dates and analytical parameters tested for each sample collected (all media) over the entire course of the investigation. (See, for example, Table 3-1 in the October 1992 Final Remedial Investigation Report; only add the Phase II analytical parameters and the corresponding sampling dates. In addition, the analytical methods used for the parameters tested should be denoted somehow, perhaps as footnotes or in headers to the table.)

b) Summary of Analytical Results (for all media sampled) - Summary tables presenting **historical** sampling results from the previous investigations, as well as, the most recent results should be prepared. These tables should include, for each sample collected, **all** the chemicals detected, their corresponding concentrations, the detection limits for non detects, the analytical methods, and the sampling dates or stages that the work was performed.

NOTE: Viewing historical groundwater results in a tabular format is especially important for the evaluation of groundwater conditions at a site. In addition, the tabular format of historical data will help determine if groundwater contaminates may be naturally degrading, or increasing with the passage of time.

The groundwater summary presented in Table 5-6 of this report should be expanded to include all chemicals detected in previous stages, not just BTEX results from this Phase II work, and to include the items discussed above. (For example, groundwater sampling results for Phase I RI indicate that monitoring well 29GW01 also contained the organics napthalene and 2-methylnaphthalene, and 29GW02 contained napthalene, dibenzofuran and phenanthrene. Other chemicals may have also been detected in previous investigations. For example, the 1988 Site Investigation (SI) results for groundwater samples collected indicated 29GW01 also contained 2-propenylbenzene and alkylbenzene; 29GW02 contained 4-methyl-2 pentanone, 2-butanone, cyclohexane, cyclopentane, pentane, and others. All chemicals detected should be included in the tables.)

c) Figures (drawings and cross-sections) of Overall Contaminant Plumes - Groundwater data collected from this and previous investigations should be incorporated into the figures somehow. For example, a figure could be prepared similiar to the Groundwater Round 3 BTEX Results (Figure 5-31) to include contaminates that were detected in each well in this Phase II investigation and in previous investigations. (Another way to graphically represent groundwater results is by drawing isoconcentrations for each parameter detected.)

NOTE: The impacted wells in the Round 3 sampling event indicate that the horizontal and vertical extent of groundwater contamination at this site have not been delineated. Additional wells are necessary to adequately delineate the groundwater contamination. Once additional data is gathered, drawings showing isoconcentrations of the different contaminant parameters should be prepared.

2. It is also difficult to evaluate the overall risks associated with this site. A risk assessment for soils was previously performed based on the results of the Phase I RI. A baseline risk assessment for soils was not performed based on additional data collected in the Phase II RI. If Phase II results indicate higher concentrations of soil contaminants than those used in the Phase I risk assessment, or if additional chemicals which were not included in the Phase I risk assessment are detected, these higher concentrations or additional contaminants may affect the overall risk assessment for this site. In addition, the baseline risk assessment performed with regards to groundwater exposure for this Phase II work, did not include chemicals detected in the previous (SI and Phase I) investigations such napthalene, 2-methylnapthalene, dibenzofuran, 2-propenylbenzene, cyclohexane, etc.

An "all-encompassing" risk assessment needs to be performed. To evaluate overall risks, risk assessments should be presented, for all media, and should include **all** chemicals of concern that were detected in **all phases** of the investigations of this site.

Note: See also David Lilley's attached comments regarding risk assessment.

3. Reports should always include laboratory analytical results which list the individual parameters tested, the method detection limits (MDLs), quantitation limits (CRQLs, PQLs), sample quantitation limit (SQL), units of measurement (i.e. mg/kg, ug/l etc.) percent soil moisture, dilutions (if performed), etc. (The format used to report the laboratory results for TCL Semivolatile analyses of surface soils at BRAC Site10 is a good example. (See Appendix E of the report entitled "Site Characterization and Evaluation Report for BRAC Sites 10 and 11)).

Note: Total petroleum hydrocarbon (TPH) results should be reported on a dry weight basis and the adjustments made due to moisture content should not cause the quantitation limits to exceed 10 ppm (for Method 5030), 40 ppm (for Method 3550) and 250 ppm (for Method 9071), unless dilutions were necessary because of the high concentrations of contaminants.

4. Method 418.1 was used for TPH analyses of heavy fuels in this Phase II Remedial Investigation and in previous investigations. State guidance specifies method 9071 (oil and grease) for analyses of heavy fuels. Since the petroleum contamination of soils at this site appears to include the full range of petroleum hydrocarbons (from low boiling point fuels to heavy fuels), the TPH results obtained using method 418.1 will need to be verified using method 9071, the state-accepted method. Resampling every soil sample location where method 418.1 was used instead of method 9071 will not be necessary; however, the areas exhibiting high levels of TPH (in the vicinity of soil borings SB07 and 08) using method 418.1 should be resampled and analyzed using method 9071 for comparison. For future reference, if deviation from state guidance is proposed, the state should be consulted prior to performing the work.

5. Wetlands are discussed in the section on general physical setting, but no information is given on which areas of this site (if any) are designated wetlands. The location of wetlands should be discussed in the report, and a map/figure should be included designating the wetland boundaries.

Note: EPA previously requested that information be provided on endangered or threatened species found in the area, and on any wetlands or other sensitive environments on or near the site. (See EPA's general comment #2 in letter dated April 1, 1993.) To date, this information has not been provided.

6. The dates that field activities are performed should be provided in the text.

Specific Questions/Comments:

1. Section 3.2.1 - (last paragraph) "A copy of analytical methods 418.1 and 9071 is presented for comparison in Appendix D." A copy of method 9071 needs to be included in Appendix D (method 413.2 is included, rather than method 9071).

2. Figures denoted as 4-7 through 4-12 need to be changed to correspond with the figure references in the text. Some of the figure numbers in Section 5.0 also do not correspond with the text references.

3. Section 4.4 - (1st paragraph, last sentence) - Need to clarify which well(s) were aggressively pumped in September 9-20, 1991, and which wells contained passive recovery system or were hand bailed from September 20, 1991 to the present time.

4. Section 5.0 - (2nd paragraph) - "Demonstrated" is misspelled.

5. Section 5.1 - (1st sentence) - Should be Site 29 rather than 39.

6. Section 5.1.3 **and** Sections 5.2.2.1 through 5.2.3.3 - When analytical results are well presented in tables and represented in figures, listing individual results in the text of the report is not necessary. For example, the individual soil sampling results for TPH are nicely denoted on the three figures for the various sampling depths (Figures 5-26 through 5-28) and are presented in Table 5-1. Therefore, the discussion in the text should reference these results and not repeat the individual results in the text. (The more locations data is presented, the higher the chances are for error.) For example, for 20GW09 Round 3 results, Tables 5-5 and 5-6 indicate benzene was detected @ **3.7** ug/l, the associated figure (Figure 5-31) also designates **3.7** ug/l, however, **37** ug/l is listed in the text. Discussions of the minimum and maximum contaminant concentrations and their locations, as well as, general statistics and trends should still be included in the text.

7. Section 5.2 - The discussion of groundwater sampling should include the reason(s) why three rounds were collected, the dates and the sampling intervals.

8. Figures 5-26 through 5-31- Results listed on these figures that are average concentrations for duplicate samples should be denoted somehow on these figures. (See, for example, figure 5-27, soil boring 29SB07.) In addition, the results reported on these figures need to be checked for accuracy. (For example, see figure 5-30 results for 29GW01 (ethyl benzene @ 11 ug/l; should this be 1.1 ug/l?); On Figure 5-31, the blocked result for 29GW03 is mistakenly traced to 29SB03.)

9. Section 7.0 - Baseline Risk Assessment - See David Lilley's attached comments and General Question/Comment # 2 above. All tables regarding potential chemicals of concern in this section and the risk calculations provided (Appendix D) need to be adjusted accordingly.

10. Section 7.3.2.5 - Determination of alternate cleanup levels for TPH contaminated soils using the Site Sensitivity Evaluation (SSE) does not apply if non-petroleum fuel contaminants exist at the site. Since other non-petroleum contaminants do exist at Site 29, the strictest TPH cleanup levels will apply for the petroleum contaminated soil (10 ppm for low boiling point hydrocarbons (Method 5030/8015); 40 ppm for high boiling point hydrocarbons (Method 3550/8015); and 250 ppm for heavy fuels (Method 9071 (oil and grease)). All associated text, figures and tables need to be adjusted accordingly.

11. Section 8.0 - The conclusions and recommendations presented here should be based on a **comprehensive** evaluation of the investigative results and the associated risks from all phases of work performed at this site. (See General Questions/Comments # 1 and 2 above.) At this time, there is not sufficient information to determine if Corrective Action under NCAC 2L .0106 (l) will apply at Site 29. Certain deficiencies still exist such as the horizontal and vertical extent of groundwater contamination have not been delineated, the potential receptors and supply wells have not been identified, and some of the other required information has not been addressed. (Refer to the "Certification for the Submittal of a Corrective Action Plan Under 15A NCAC 2L .0106(l)" for the required information and documentation.)

Note: Once all the comments are addressed, a meeting should be held with state representatives from NC Superfund and the DEM Wilmington Regional Office's Groundwater Section to discuss the next steps in the assessment and remediation of this site.

February 27, 1995

TO: Linda Raynor

FROM: David Lilley DBL

RE: Comments prepared on the Draft Final Remedial Investigation Report, Phase II Remedial Investigation, Site 29-Crash Crew Burn Pit, MCALF, Bogue, NC

After reviewing the above mentioned document, I offer the following comments:

1. Page 7-3: The reader cannot review the selection of COPC process until the original sampling data and a description of the parameters used to select the COPCs are provided.

2. Page 7-3: In a review of this and preceding documents, the reader could not find justification for omitting VOC sampling of the surface soil. Please explain.

3. Page 7-32, Table 7-3: The dermal RfD for toluene should be 2×10^{-1}, and the dermal RfD for ethylbenzene should be 1×10^{-1}.

4. Page 7-32, Table 7-3: The dermal RfDs for barium, manganese, nickel, and zinc were not calculated by adjusting the corresponding oral RfD. Please explain.

5. Page 7-32, Table 7-3: It is claimed on page 7-9 (last paragraph) that if a chemical is more than 90% absorbed in the gastrointestinal tract, the oral RfDs and CSFs would be used without adjustment. Table 7-3 lists the Absorption Fraction as 95%, but the dermal CSF was still adjusted. Please explain.

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NORTH CAROLINA DIVISION OF ENVIRONMENTAL MANAGEMENT
Groundwater Section
Wilmington Regional Office

MEMORANDUM TO: Linda Raynor

FROM: Charlie Stehman

SUBJECT: Review of Crash Crew Burn Pit Remedial Investigation
Unites States Marine Corps Auxiliary Landing Field
Bogue, North Carolina

DATE: March 27, 1995

The Groundwater Section has, at the request of R.D. Nelson, Environmental Affairs Officer for the Marine Corps Air Station, Cherry Point, undertaken a review of a Remedial Investigation conducted at the Bogue Auxiliary Landing Field in Carteret County. In the interest of simplifying the regulatory review process, we are supplying our comments to you for incorporation into the Superfund Sections umbrella review report.

1) From the introductory narrative in this document, we learn the Marine Corps utilized the burn pit by pouring and igniting quantities of various flammable liquids, including fuels, solvents and motor oils over structures for fire service training and practice. There is very limited information concerning the different types of flammable liquids which were used and no information concerning the quantities which were involved. With this information missing, it is appropriate that samples from this site be subjected to analyses for a broad range of parameters in order to establish what compounds constitute the residual contamination at this site. By contrast the report of chemical analyses found in Section 5 of the report contains only summaries of metals, oil and grease, and petroleum fuels analysis. If other analyses have been performed at this site they are an important missing component of the report which should be included to demonstrate why the principal focus of the study is on metals and petroleum products. If these analyses have not been conducted, the study is incomplete.

2) The report indicates that oil and grease in soils was conducted using EPA Method 418.1. This method is not acceptable to the North Carolina Division of Environmental Management for analysis of oil and grease in soils. The required analysis is EPA Method 9071. Method 418.1 is a very good method for hydrocarbon screening, but it has a great disadvantage in that it is non-specific and does not provide differentiation of different hydrocarbon fractions. The summary Table 5-1 suggests that the compounds detected by 418.1 are resultant low and middle distillate fuels because 418.1 showings are only found where the fuels were detected by other methods. Additional analysis using 9071 should be conducted to verify this speculative deduction.

3) The report indicates through Table 5-1 that a substantial percentage of the materials used at the site were medium distillates, however the groundwater quality testing has focused on low distillates and metals. The study should have incorporated 625 plus library search analyses for each of the water samples. Any argument that the low distillate analysis is an indicator of the presence of middle distillates will not be accepted for purposes of impact analysis or for applications involving "no-action" scenarios.

4) It is disturbing that there are no monitoring wells in the immediate vicinity of the highly contaminated soil samples, and that no data has been provided for hydropunch No. 4. In order to confidently define the character of the plume additional wells should be placed in the area of soil borings 29SB07, 29SB08 and 29SB10. Also a shallow well which spans the water table should be installed in the immediate vicinity of the burn pit. No data for monitoring well 29GW11 has been provided in the summary tables.

5) Once confidence in the plume characterization has been established, the consultant should develop a drawing which shows isoconcentrations of the different contaminant parameters. If contouring cannot be undertaken with confidence, then additional monitoring wells are needed.

6) Superfund Section has asked about the applicability of Site Sensitivity Evaluation (SSE) for establishing clean-up levels for soils at this site. It appears that SSE is applicable because this is not an "A" or "B" category site. However, SSE will only apply after it can be demonstrated that other non-petroleum fuel contaminants are absent form the site.

Copies: R.D. Nelson (Cherry Point)
WiRO File

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